Appendix H
Circulation Element Traffic Study

CIRCULATION ELEMENT EIR TRANSPORTATION STUDY

Submitted to:

City of Riverside

Prepared by:

Meyer, Mohaddes Associates, Inc.

An Iteris Company

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LIST OF TABLES

I. EXISTING CIRCULATION SYSTEM CONDITIONS

PURPOSE

The purpose of this report is to document the existing and future circulation conditions in the City of Riverside, based upon land use changes and growth according to the Land Use Element of the General Plan. The Circulation Element (the Element) is the part of the General Plan that sets City policy for transportation systems and facilities. The Element is to provide for a safe, convenient and efficient transportation system allowing for the movement of people and goods throughout the city. The Circulation Element supports the Land Use Element by the provision of a planned transportation system based on projected levels of future land use activity. The Element is required as part of the General Plan based on California Government Code Section 65302(b). This section of the report sets the foundation for the full Circulation Element by describing in detail the key transportation facilities in the City.

STREETS AND HIGHWAYS

A comprehensive transportation network of streets and highways, multi-use trails, bus transit and commuter rail provides mobility options within the City of Riverside. While the private auto has historically been the dominant mode of travel in the region, and will likely continue to be, the mix of facilities and modal types provides options for travel that are not dependent on the automobile for regional mobility.

The existing conditions section describes the various elements of the City's transportation system as they operate currently. It includes a description of their physical setting and environment, and evaluation of operating conditions. Included are discussions of existing transportation systems (roadways, transit services, bicycle facilities, pedestrian facilities, truck prohibitions) and other key transportation facilities and programs. As part of the existing conditions analysis, previous documents have been reviewed and summarized, and new traffic data has been collected.

The City of Riverside is served by the existing network of roadways shown in Exhibit 1. There are several freeways within the City limits: SR 91, a major east-west inter-regional facility which runs from the beach cities in Los Angeles County and ends at SR 60 to the east; SR 60, another east-west facility which provides access to Los Angeles County and is generally located north of SR 91 and is concurrent with I-215 for approximately 5 miles; and I-215, a north-south interstate which provides access to I-15 in San Bernardino on the north and ties to I-15 south of the City near Murrieta. Existing traffic volumes on these freeways within the City range from 101,000-125,000 vehicles per day (vpd) on SR 60, 160,000-197,000 vpd on SR 91, and 151,000-173,000 vpd on I 215.

The primary arterial streets in the City include: Van Buren Boulevard, Arlington Avenue, Trautwein Road, Magnolia Avenue, Market Street, Iowa Avenue, Central Avenue, and Alessandro Boulevard. The existing functional classification system is shown in Exhibit 2.

Riverside has defined the roadway system using a series of functional classifications. The presently adopted circulation system consists of the following functional classifications:

Minor Streets principally provide vehicular, pedestrian, and bicycle access to property that is directly abutting the public right-of-way with movement of "through" traffic discouraged. Local streets are designated to be 36 feet wide curb to curb within a 66-foot right-of-way and have two through lanes (one in each direction).

Collector Streets are intended to serve as the intermediate route to handle traffic between the local streets and streets of higher classification. Collector streets also provide access to abutting property, and are two-lanes in width. Collector streets may handle some localized "through" traffic from one local street to another; however, their purpose is not to provide for through traffic capacity but to connect the local street system to the arterial network. The 66' collector streets are designated to be 40 feet wide curb to curb within a 66-foot right-of-way; and the 80' collector streets are also 40 feet wide curb to curb but has a 80-foot wide right of way

Arterial Streets carry through traffic and connect to the State highway system with restricted access to abutting properties. They are designed to have the highest traffic carrying capacity in the roadway system with the highest speeds and limited interference with traffic flow by driveways. Riverside has several arterial classifications: 88' arterial with four-lanes, 64 feet wide curb to curb in an 88 foot right-of-way; 100' arterial with four lanes, a raised median, 80 feet wide curb to curb, in a 100 foot right-of-way; 110' arterial with four lanes, a raised median, 86 feet wide curb to curb, in a 110 foot right-of-way; 120' arterial with six lanes, a raised median, 100 feet wide curb to curb, within an 120 foot right-of-way; and a 144' arterial with eight travel lanes, a raised median, 124 feet wide curb to curb, within a 144 foot right-of-way. In general, parking may be allowed, or peak hour parking may be prohibited on higher volume arterials.

Some of the roads are designated as scenic boulevards, these require special landscaping and additional right-of-way may be required. There are also several special boulevards which have a two lane divided roadway of variable geometric design.

TRAFFIC VOLUMES AND LEVEL OF SERVICE

Traffic flow is measured and analyzed both on a daily basis and during peak hours of traffic flow (commute peak hours). On a daily basis, traffic flow is measured on roadways at mid-block locations to determine the overall level of travel demand and level of service. Average Daily Traffic (ADT) values are developed that represent the typical daily traffic flow on each key roadway in the City. Exhibit 3 illustrates the Annual Daily Traffic for 2003. The highest traffic volume locations in the City are:

- Van Buren Blvd north of Arlington Ave – 49,900 to 56,500 vpd
- Alessandro Blvd between Chicago Ave and Trautwein Rd – 42,100 to 46,400 vpd
- Van Buren Blvd west of Wood Rd – 42,100 vpd
- Tyler St between Magnolia Ave and Indiana Ave – 40,900 vpd
- Arlington Ave between Victoria Ave and Alessandro Blvd – 37,200vpd
- Van Buren Blvd between Magnolia Ave and Indiana Ave – 37,100 vpd

During peak hours, intersection traffic volume is counted to determine the operating conditions during the peak hours of travel demand. Typically, intersection traffic demand is measured for the peak morning and afternoon/evening commute peak periods (7 to 9 AM and 4 to 6 PM). Then, the single highest hour in the morning and in the afternoon is determined and used to develop intersection level of service estimates.

Level-of-service is a qualitative measure describing the efficiency of traffic flow. It also describes the way such conditions are perceived by persons traveling in a traffic stream. Levels-of-service measurements may also describe variables such as speed and travel time, freedom to maneuver, traffic interruptions, traveler comfort and convenience, and safety. Measurements are graduated ranging from level-of-service A (representing free flow and excellent comfort for the motorist, passenger or pedestrian) to level-of-service F (reflecting highly congested traffic conditions where traffic volumes approach or exceed the capacities of streets, sidewalks, etc.).

Levels-of-service can be determined for a number of transportation facilities including freeways, multi-lane highways, two-lane highways, signalized intersections, intersections that are not signalized, arterials, transit and pedestrian facilities. For the circulation element update, intersection level of service is measured to determine the peak period operating characteristics at several key intersections in the City. Intersections typically represent the most critical locations of bottlenecks and congestion since the right-of-way must be shared by opposing traffic. Level of service D is the minimum threshold goal for a system-wide level of service on city arterials and collectors. The minimum level of service D objective for the roadway system reflects the City's desire to maintain stable traffic flow throughout the City, recognizing that peak hour congestion may occur at locations near freeways or other locations with unusual traffic characteristics due to regional traffic flow. Table 1 below outlines the level of service concept. Level of service is based on average vehicle delay and also on the volume-to-capacity ratio.

Table 1

Intersection Level of Service Definitions

LOS	*Interpretation*	*Signalized Intersection Delay (seconds per vehicle)*	*Stop-Controlled Intersection Average Stop Delay (seconds)*
A	Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	≤ 10	≤ 10
B	Very good operation. Many drivers begin to feel somewhat restricted within platoons of vehicles. This represents stable flow. An approach to an intersection may occasionally be fully utilized and traffic queues start to form.	> 10 and ≤ 20	> 10 and ≤ 15
C	Good operation. Occasionally backups may develop behind turning vehicles. Most drivers feel somewhat restricted.	> 20 and ≤ 35	> 15 and ≤ 25
D	Fair operation. There are no long-standing traffic queues. This level is typically associated with design practice for peak periods.	> 35 and ≤ 55	> 25 and ≤ 35
E	Poor operation. Some long-standing vehicular queues develop on critical approaches.	> 55 and ≤ 80	> 35 and ≤ 50
F	Forced flow. Represents jammed conditions. Backups from locations downstream or on the cross street may restrict or prevent movements of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop-and-go-type traffic flow.	> 80	> 50

Source: **Highway Capacity Manual 2000, Exhibit 16-2. and Exhibit 17-2**

Intersection traffic volumes were obtained from a series of new traffic counts conducted in 2003 to identify intersection traffic flow at 15 key intersections in the City. Each study intersection was then field reviewed to determine the geometric characteristics including number of lanes on each intersection approach by type (through lanes, left turn lanes, right turn lanes and shared lanes), type of traffic control and other relevant information. The roadway characteristics and traffic volume data were then used to estimate existing AM and PM peak hour operating conditions. Exhibit 4 shows the intersections that were analyzed to find the peak operating conditions. Using the Highway Capacity Manual delay-based methodology, the service level at each intersection was estimated. Table 2 illustrates the current intersection level of service at each key intersection. As can be seen in Table 2, all intersections that were analyzed currently operate at level-of-service D or better, indicating generally acceptable conditions. The level of service D locations are as follows: Alessandro Boulevard at Arlington/Chicago- PM, Magnolia Avenue at Central – AM and PM, and Van Buren Boulevard at Arlington – AM and PM. Additional and more detailed analysis of the Central/Brockton/Magnolia intersection is being conducted as part of the Magnolia Specific Plan Project.

Table 2

Existing Intersection Level of Service

Intersection		AM Peak Hour			PM Peak Hour		
		LOS	DELAY (sec)	Volume/ Capacity	LOS	DELAY (sec)	Volume/ Capacity
Alessandro	Arlington/ Chicago	C	26.8	0.785	D	41.6	0.990
Alessandro	Trautwein	C	23.9	0.794	B	13.8	0.614
Arlington	La Sierra	B	20.0	0.345	C	20.8	0.504
Canyon Crest	Central	C	26.5	0.748	C	29.0	0.675
Magnolia	Arlington	C	27.5	0.555	C	30.3	0.694
Magnolia	Central/ Brockton	D	39.5	0.990	D	43.7	1.070
Magnolia	Tyler	C	20.1	0.287	C	27.1	0.498
Market	University	C	23.9	0.423	C	24.8	0.566
Martin Luther King	Canyon Crest	C	22.1	0.607	C	24.7	0.771
Martin Luther King	Chicago	C	28.4	0.786	C	27.3	0.620
Van Buren	Arlington	D	41.7	0.942	D	47.3	1.036
Van Buren	Indiana	C	25.4	0.639	C	25.7	0.602
Van Buren	Magnolia	C	27.0	0.548	C	29.5	0.702
Van Buren	Orange Terrace	C	30.7	0.619	A	7.9	0.334
Van Buren	Trautwein	C	28.9	0.671	C	23.7	0.574

Neighborhood Traffic Management

As traffic volumes and congestion have increased on the major regional roadways, drivers looking to reduce their travel times begin to look at alternative routes using the local street system to avoid problem areas. This neighborhood intrusion by “cut-through” traffic has become a growing concern for some residential areas. The City of Riverside has an active Neighborhood Traffic Management Program to minimize and/or prevent intrusion of regional cut-through traffic into residential neighborhoods through traffic management and traffic calming strategies; and to improve the livability of neighborhoods through controlling the impacts of outside traffic. The strategies include speed control methods, parking restrictions, speed humps, pedestrian safety improvements and sight obstruction elimination. The community is actively involved in requesting calming measures, and in some cases, help the City in the costs of the improvements.

GOODS MOVEMENT

Trucking

Industrial uses and interstate shipping require truck access and mobility for the delivery of parts and raw materials, movement of inventories, and the shipping of finished goods to the marketplace. Commercial and residential uses require the delivery of goods and services for daily operations and other functions. In the City of Riverside, trucks are generally not restricted to specific roadways. There are certain roads where trucks over ten thousand (10,000) pounds are prohibited, except when making deliveries. The restricted streets are prescribed by City Code. These are shown in Exhibit 5.

Rail Freight

The City of Riverside contains active rail lines that serve the Union Pacific and Burlington Northern Santa Fe companies. The freight rail system serves the growing Ports of Los Angeles and Long Beach, and much of the freight travels easterly through Riverside. In 2000, peak railroad traffic in Riverside County was 85 freight trains per day and is expected to grow to 169 trains per day in 2020. The City is actively pursuing grade separation projects in order to increase vehicular safety, and reduce vehicular delays thus reducing air quality impacts caused by idling vehicles waiting for trains to pass. The recently completed Railroad Grade Separation Report will help the City prioritize the grade separation project.

TRANSIT SERVICES

The City is served by a mix of bus and rail services. Extensive bus service is provided by the Riverside Transit Agency (RTA), which serves western Riverside County. RTA also offers an intercity Dial A Ride service for ADA-certified passengers. Routes within the City are shown in Exhibit 6.

Rail service is provided by Metrolink. Three lines traverse the City: the Inland Empire-Orange County Line, which runs between San Bernardino to San Juan Capistrano; the 91 Line, which runs from Riverside to downtown Los Angeles via Fullerton and other points in Orange County; and the Riverside Line, which runs also runs from Riverside to downtown Los Angeles.

NON-MOTORIZED TRANSPORTATION

Bicycling as a transportation mode can play an increasingly significant role as an alternative to the single-occupant automobile. The City of Riverside has recognized this fact with its Bicycle Master Plan that designates a series of Class I and Class II bicycle facilities throughout the City. The Plan is shown on Exhibit 7.

II FUTURE TRANSPORTATION AND CIRCULATION

This section of the report analyzes the potential physical environmental effects related to increased traffic volumes within the City of Riverside from implementation of the proposed General Plan.

THRESHOLDS OF SIGNIFICANCE

Intersections

The City of Riverside currently does not have a specific intersection threshold that applies to intersections in the context of a General Plan. As such, the threshold used in this document is based on standard practices throughout Southern California and is consistent with City practices regarding environmental review of development projects. Table 3 shows the intersection level of service definitions from the 2000 Highway Capacity Manual. Based on these definitions and the intersection thresholds used in environmental studies in the City of Riverside, LOS D would be the minimum threshold goal for a system-wide LOS on city arterials and collectors. Thus, intersections that operate at LOS E or F are considered to be deficient, with the exception of a few freeway interchanges for which LOS E may be acceptable. The minimum LOS D objective for the roadway system reflects the City's desire to maintain stable traffic flow throughout the City, recognizing that peak-hour congestion may occur at locations near freeways or other locations with unusual traffic characteristics due to regional traffic flow. In addition, the City does not want to facilitate regional cut-through traffic on City streets.

Table 3
Intersection Level of Service Definitions

LOS	*Interpretation*	*Signalized Intersection Delay (seconds per vehicle)*	*Stop-Controlled Intersection Average Stop Delay (seconds)*
A	Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	≤ 10	≤ 10
B	Very good operation. Many drivers begin to feel somewhat restricted within platoons of vehicles. This represents stable flow. An approach to an intersection may occasionally be fully utilized and traffic queues start to form.	> 10 and ≤ 20	> 10 and ≤ 15
C	Good operation. Occasionally backups may develop behind turning vehicles. Most drivers feel somewhat restricted.	> 20 and ≤ 35	> 15 and ≤ 25
D	Fair operation. There are no long-standing traffic queues. This level is typically associated with design practice for peak periods.	> 35 and ≤ 55	> 25 and ≤ 35
E	Poor operation. Some long-standing vehicular queues develop on critical approaches.	> 55 and ≤ 80	> 35 and ≤ 50
F	Forced flow. Represents jammed conditions. Backups from locations downstream or on the cross street may restrict or prevent movements of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop-and-go-type traffic flow.	> 80	> 50

Source: **Highway Capacity Manual 2000, Exhibit 16-2. and Exhibit 17-2**

Roadway Links

The City of Riverside Public Works Department has defined LOS D as the minimum adequate service level on roadway links for planning and design purposes. For purposes of this EIR, the threshold is defined as any roadway segment that would have a volume/capacity ratio of 1.0 or higher at the buildout of the plan, which would require consideration of changes in the roadway classification. Thus, roadway links are considered to operate over-capacity when the future forecast daily traffic volume exceeds the daily capacity values. The daily capacity values, which are given in average daily trips (ADT), are as follows:

144 Foot Arterial (8-lane)—65,000 ADT
120 Foot Arterial (6-lane)—49,500 ADT
120 Foot Arterial (6-lane)—49,500 ADT
110 Foot Arterial (4-lane)—33,000 ADT
100 Foot Arterial (4-lane)—33,000 ADT
88 Foot Arterial (4-lane)—22,000 ADT
80 Foot Collector (2-lane)—12,500 ADT
66 Foot Collector (2-lane)—12,500 ADT

These are generally considered to be Level of Service "D" thresholds. Therefore any links exceeding these values based on future traffic projections are considered to be deficient, and would be at LOS E or F conditions in the future.

Riverside County Criteria

The County uses a similar methodology as the City to assess traffic conditions. The County determines the existing LOS for each segment/link along the street and highway network.

The County uses a different nomenclature system for the functional classifications, however the general roadway types are similar. The County standards currently have slightly lower daily capacity values as compared to City standards. Since the proposed General Plan would apply to the sphere of influence areas upon annexation of these areas into the City, only the City standards would be relevant when considering criteria for the determination of a potentially significant traffic impact. Thus, the City's thresholds would be applied to the SOI areas while the County standards would no longer be applicable. However, in order to be consistent with the County criteria, this transportation analysis is based on potential significant traffic impacts in the SOI areas, upon buildout of the proposed General Plan, on roadway segments.

FUTURE TRAFFIC FORECASTS

A computer traffic model based on the regional model of the Southern California Association of Governments (SCAG) was used to estimate the future intersection levels of service in the City upon buildout of the proposed General Plan. The future traffic conditions in the City resulting from buildout of the proposed General Plan were determined first by applying the trip generation rates for land uses based on data developed by the Institute of Transportation Engineers (ITE) and other sources. These trip generation rates were then used to estimate the number of trips to and from various types of land uses in a day. Based on the application of these trip generation rates to the existing land uses in the City, it was determined that the City currently generates approximately 1.69 million trips per day. Upon buildout of the proposed General Plan, the trips are expected to grow to 2.53 million trips per day from the City. Tripmaking within the City is projected to increase by approximately 50 percent between now and buildout of the proposed General Plan, while tripmaking in the southern California region is projected to increase by approximately 36 percent. This indicates that the City will experience a higher rate of growth in travel than the southern California region as a whole, which reflects the fact that portions of the City are still growing more rapidly than the rate at which the remaining region is developing.

Future Intersection Level of Service Forecasts

The results of the traffic model were then used to project future intersection levels of service in the City upon buildout of the proposed General Plan. A total of fifteen key intersections in the City were analyzed during the a.m. and p.m. peak hours. Table 4 shows the intersections during the a.m. peak hour and p.m. peak hour and notes those that are projected to exceed the minimum threshold goal for acceptable levels of service and compares the existing intersection conditions with the projected future intersection conditions resulting from buildout of the proposed General Plan. As previously discussed, intersections that operate at LOS E or F conditions are considered to be deficient.

Table 4
Existing and General Plan Buildout Intersection
Levels of Service

Intersection		*Existing Intersection Conditions*				*Future Buildout Intersection Conditions Before Mitigation*			
		A.M. Peak Hour		*P.M. Peak Hour*		*A.M. Peak Hour*		*P.M. Peak Hour*	
		LOS	*Delay (sec)*	*LOS*	*Delay (sec)*	*LOS*	*Delay (sec)*	*LOS*	*Delay (sec)*
Alessandro	Arlington/ Chicago	C	26.8	D	41.6	E	60.7	F	88.3
Alessandro	Trautwein	C	23.9	B	13.8	D	47.6	C	26.1
Arlington	La Sierra	B	20.0	C	20.8	C	24.5	E	58.4
Canyon Crest	Central	C	26.5	C	29.0	E	63.3	F	90.8
Magnolia	Arlington	C	27.5	C	30.3	C	29.5	D	43.2
Magnolia	Central/ Brockton	D	39.5	D	43.7	*	*	*	*
Magnolia	Tyler	C	20.1	C	27.1	C	22.7	C	30.8
Market	University	C	23.9	C	24.8	C	23.7	C	25.7
Martin Luther King	Canyon Crest	C	22.1	C	24.7	C	28.6	E	71.5
Martin Luther King	Chicago	C	28.4	C	27.3	D	36.7	D	44.7
Van Buren	Arlington	D	41.7	D	47.3	E	75.4	E	65.1
Van Buren	Indiana	C	25.4	C	25.7	C	24.9	C	26.4
Van Buren	Magnolia	C	27.0	C	29.5	C	29.4	D	42.8
Van Buren	Orange Terrace	C	30.7	A	7.9	B	13.8	A	8.4
Van Buren	Trautwein	C	28.9	C	23.7	D	44.0	D	46.4

*To be studied in detail in the Market-Magnolia Specific Plan, Levels of Service will be analyzed as part of the Specific Plan

As shown in Table 4 and Exhibit 8, buildout of the proposed General Plan would result in deficiencies at three (3) intersections during the a.m. peak hour, all three (3) would operate at LOS E and none (0) would operate at LOS F. During the p.m. peak hour, three (3) intersections would operate at LOS E while one (1) intersection would operate at LOS F. By comparing the existing intersection conditions with the projected future intersection conditions, it can be seen that all intersections are currently operating at acceptable levels of service and six (6) intersections will operate at deficient levels of service at buildout of the General Plan. The intersection of Alessandro at Arlington/Chicago and the intersection of Canyon Crest at Central would each operate at LOS E in the A.M. peak and LOS F in the P.M. peak upon buildout of the proposed General Plan. The intersection of Arlington at La Sierra would operate at LOS E during the p.m. peak hour. The intersection of Martin Luther King at Canyon Crest would also operate at LOS E in the P.M. peak upon buildout of the General Plan. The intersection of Van Buren at Arlington is projected to operate at LOS E during both A.M and P.M peak hours. However, it can be seen that these six (6) intersections that are currently operating at acceptable levels of service would become deficient upon buildout of the proposed General Plan. As such, this impact may be potentially significant.

Future Roadway Level of Service Forecasts

As previously discussed, the proposed General Plan's impact on roadway segments, rather than intersections, have also been analyzed, where roadway segments that operate at LOS E or F conditions are considered deficient. The projected future daily traffic flows on roadway links in the City are shown in Exhibit 9. The regional future model roadway network (the network outside of the City boundaries) used for this analysis includes the existing roadway system plus the planned/funded improvements that are embedded within the SCAG model. The model includes projects included in the State Transportation Improvement Program (STIP) as well as other regional funded and programmed improvements. All City Capital Improvement Program (CIP) projects within the City for existing streets are included in the "buildout" model network. All roadway network improvements that are included in specific plans have been also coded into the network. In addition, all streets in the regional future model roadway network are assumed to be built out to their ultimate classification in terms of number of lanes. As shown in Figure 10 the following segments would operate at LOS E or F upon buildout of the proposed General Plan.

Roadways projected to be at LOS E upon buildout of the proposed General Plan include:

- Portions of Van Buren south of Cypress, south of Indiana, near Wood, and near the Trautwein intersection, as well as west of the I-215 interchange;
- Arlington east of SR 91;
- Alessandro between Trautwein and I-215;
- Madison north of SR 91.

Roadways projected to be at LOS F upon buildout of the proposed General Plan include:

- Portions of Van Buren north of Cypress, between Lincoln and Mockingbird Canyon, locations between Wood and Sycamore Canyon;
- Portions of La Sierra from near SR 91 to Dufferin;
- Trautwein between Alessandro and Van Buren;
- Alessandro between Victoria and Trautwein
- Portions of Arlington and Chicago near Alessandro;
- Portions of Martin Luther King between SR 91 and SR 60.

Therefore, these impacts may be potentially significant.

REGIONAL TRANSPORTATION PLANS

There are several regional and subregional transportation plans that include the City of Riverside. They include the Riverside County Congestion Management Program (CMP), the Southern California Association of Governments Comprehensive Transportation Plan (SCAG/CTP), the Regional Transportation Improvement Program (RTIP), the Regional Transportation Plan, the Riverside County Community and Environmental Transportation Acceptability process (CETAP) plan, and the Transportation Uniform Mitigation Fee (TUMF). The proposed General Plan Circulation Element analysis has been conducted using a travel demand model that is based upon SCAG's regional model. As such, the model is consistent with the SCAG model and incorporates all of the regional model data and projects on the regional system within and outside of the City. This assures consistency with the Regional Transportation Plan, the Regional Transportation Improvement Program (RTIP) and the SCAG/CTP model. Also, the CMP requires that local models follow SCAG consistency guidelines to assure compliance with the CMP, which the City of Riverside model has followed. With respect to the TUMF, the traffic model network has incorporated all future proposed TUMF roadway improvements and is therefore consistent with that program.

There are additional regional projects that are in the concept planning stage, such as an east/west expressway/freeway corridor linking Riverside and Orange County, a potential MAGLEV rail project running east/west through the City, a goods movement corridor improvement project on the Burlington Northern Santa Fe (BNSF) rail line, and other projects that are not funded at this time. Also, the Regional Transportation Plan includes a list of "unconstrained" projects for which funding is not identified, which provide an indication of the possible future projects that may be considered in subsequent RTP updates. While the proposed Circulation Element and the modeling associated with the element do not specifically include regional projects that are on the unconstrained list, nor do they include conceptual projects, the goals and policies in the Element do recommend that the City support development of regional improvements and participate in projects to mitigate regional traffic congestion. In this way, the Circulation Element of the proposed General Plan is fully consistent with the regional funded projects lists, and also with the intent of regional plans that seek to improve subregional and regional transportation.

Circulation Element Improvements

The Circulation Element of the proposed General Plan has proposed conceptual intersection improvements, roadway reclassifications, and roadway widenings within the City in an effort to support future development designated in the Land Use Plan of the proposed General Plan. The conceptual intersection improvements proposed under the Circulation Element and the level of service at these intersections after implementation of the proposed improvements are shown in Table 5. It is important to note that the conceptual intersection improvements are based on long-term forecasts of buildout conditions using the Citywide traffic model. The types of conceptual intersection improvements that have been investigated include the following: ITS signal system and real time monitoring system, dual left-turn lanes, exclusive right-turn lanes and right-turn overlap phases, and additional through lanes beyond the Circulation Element. These changes would only apply to Arterial roadways. Intersections are the critical bottleneck locations in an urban arterial roadway system. This is due to the fact that they allocate right-of-way in both directions; therefore, there is less capacity for each intersecting roadway than at mid-block locations. Typically, intersections are often improved beyond the standard for mid-block locations to allow for expanded capacity and to reduce congestion. Additional lanes for through traffic or turning movements may be added to eliminate bottlenecks. In Riverside, it would be necessary to expand some critical intersections in the future to provide adequate capacity. The proposed conceptual intersection improvements include items such as additional through lanes, dual left-turn lanes, and right-turn lanes in each direction. Specific intersection improvements and the number of lanes should be determined on a case-by-case basis as development occurs.

The traffic study prepared for this EIR for the General Plan covers the entire City and the sphere of influence area. The actual development patterns may occur differently than anticipated in this document due to market forces. For example, the pace of development may be faster or slower than anticipated by the analysis, or it could occur in different areas. There are no site specific project site plans at this time, so the project layout, driveway locations, land use types or intensities are unknown. Without such detail, it is not possible, using available traffic analysis procedures, to accurately estimate future intersection-specific impacts or mitigation requirements. Therefore, on-going development activity and development proposals must be reviewed on a case-by-case basis as they arise, and as such details such as building type, density and driveway location become known. The City cannot address these impacts in this Draft EIR as it would be too speculative to try to determine where, and if any, particular development would be constructed. In addition, Section 15145 of the CEQA Guidelines specifically states that if a particular impact or project is too speculative for evaluation, then analysis in the EIR is not required. The analysis contained in the General Plan EIR document should be considered as a guide to traffic impacts and recommended improvements. Refined mitigation requirements should be re-evaluated on an on-going basis depending on the location and extent of development activity that the City experiences. In addition to the analysis described in this program EIR, it is recommended that the City review significant development projects at a greater level of detail as they are proposed and work with adjacent jurisdictions as needed to evaluate impacts. Specific issues to be reviewed case-by-case include key intersections adjacent to major developments as well as ingress and egress for the specific development.

Table 5
Conceptual General Plan Intersection Improvement Recommendations

Intersection		Buildout LOS		Concept Improvements						
		A.M. Peak	P.M. Peak	Dual Left-Turn Lanes	Add Thru Lanes	Add Right-Turn Lane	Install Traffic Signal	LOS with Improvements A.M. Peak	LOS with Improvements P.M. Peak	Notes
Alessandro	Arlington/Chicago	E	F	WB	SB			D	D	
Arlington	La Sierra	C	E			EB			C	
Canyon Crest	Central	E	F	SB, WB				D	D	
Magnolia	Central/Brockton	*	*							To be analyzed as part of the Magnolia Specific Plan
Martin Luther King	Canyon Crest	C	E	WB					D	
Van Buren	Arlington	E	E					D	D	Signal Modifications – WB Right Turn overlap

Source: Meyer, Mohaddes Associates, Inc., June 2004

Roadway Reclassifications

The reclassifications of selected existing roadways within the City as proposed under the Circulation Element of the proposed General Plan are shown below in Table 6. These reclassifications are recommended to allow the roadway classification to more accurately reflect the projected future conditions and provide the appropriate right-of-way and number of lanes. The revised Functional Classification map is shown in Exhibit 11.

Table 6
Functional Classification Changes

Street	From	To	Old Class	New Class	Comment
Overlook Parkway	Alessandro	Washington	110-Foot Arterial (Scenic)	110-Foot Arterial (Scenic)	With two-lanes and wide median parkway
Overlook Parkway	Washington	Madison	None	110-Foot Arterial	Alignment to be determined in specific plan
Van Buren Boulevard	Orange Terrace	I-215	None	120-Foot Arterial (Scenic)	
Magnolia Avenue			120-Foot Arterial	4-Lane Special Boulevard	Retain 6-lanes where they exist currently, all ROW per Magnolia Avenue Specific Plan
Merrill Avenue	Magnolia	Riverside	66-Foot Collector	88-Foot Arterial	
Palm Avenue	Arlington	Fourteenth	88-Foot Arterial	66-Foot Collector	
Marlborough	Chicago	I-215	66-Foot Collector	Local	
Sandy Lane	Arlington	End	66-Foot Collector	Local	
Jones Avenue	Arlington	End	66-Foot Collector	Local	
Sherman Drive	Magnolia	End	66-Foot Collector	Local	
Redwood Drive	Palm	Fourteenth	66-Foot Collector	Local	
Roberts Road	Harbart	Wood	66-Foot Collector	66-Foot Local	Continue to show on map
Fourteenth Street	Palm	Redwood	66-Foot Collector	Local	
Tequesquite Avenue	Palm	Redwood	66-Foot Collector	Local	

*City of Riverside Functional Classification